CHAPTER 1
Environmental Restoration: **The Vision**

"The Department of the Navy is more than halfway toward meeting our goal to complete cleanup at all Navy and Marine Corps installations by the end of fiscal year 2014. Strong partnerships forged with our regulatory and community stakeholders have been vital in achieving that success."

David L. Olson, Special Assistant for
Environmental Restoration and Munitions Response Program

The Vision – Strong Environmental Partners

Environmental restoration often involves a broad spectrum of stakeholders including members of the community, Restoration Advisory Boards (RABs), federal regulatory agencies, state and local regulatory agencies, Native American tribes, and other stakeholders from the private sector. To further the Department of Navy (DON) restoration goal – to protect human health and the environment – DON has formed partnerships with these stakeholders. By working together and sharing information, the DON and its partners are developing solutions to complex environmental problems that are cost effective, minimize impacts to mission and readiness, and are acceptable to all. These complex problems often require innovative technologies and approaches that the partners develop together. Partnering also has led to optimization of treatment technologies and long-term management approaches that result in early closure of sites and significant cost avoidance. In addition to the partnerships formed to address restoration at specific sites, the DON also fosters partnerships with other branches of the military and supports research, sharing of lessons learned, and training opportunities on new, innovative technologies to solve environmental problems.

The DON's primary responsibility is to provide a strong, cutting-edge military fleet. Having a clean environment in which to support this mission is important to both Navy personnel and the surrounding communities. In the past, a number of activities resulted in the release of contaminants into the environment that require cleanup under

current environmental laws. DON's environmental restoration program has two distinct elements. The Installation Restoration Program addresses potentially hazardous chemical contaminants at Navy and Marine Corps facilities. The Munitions Response Program addresses unexploded ordnance (UXO), discarded military munitions (DMM), and munitions constituents (MC) at all locations not designated as part of an operational military test or training range.

In Fiscal Year (FY) 2003, significant progress was made toward cleanup and closure of numerous sites. The DON is moving ever closer to its goal of completing cleanup under the Installation Restoration Program by FY 2014. Cleanup has been completed at more than 50 percent of the high-risk sites. In the next five years, the DON will continue to build partnerships to accomplish environmental restoration and to carry this program toward completion. At the same time, the DON will continue developing its Munitions Response Program and will build the partnerships needed to successfully carry out this program.

Environmental Restoration – Background

Environmental restoration at Navy facilities generally has followed the process established by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund. In 1980, CERCLA created the legal mechanism for cleaning up abandoned or uncontrolled hazardous waste sites. Although CERCLA did not apply to military installations, the Department of Defense (DoD) adopted its provisions as a model for environmental

Greening Of a Superfund Site – Partnerships at Work

At the Brunswick Naval Air Station in Maine, new ball fields will open in spring 2004 in an area that was once a Superfund site. On October 23, 2003, the Times Record News, from Maine's mid-coast, published an article titled "Greening of a Superfund Site" in which they credit the partnering efforts of the Navy, the Restoration Advisory Board, and the Brunswick Area Citizens for a Safe Environment with developing a workable solution for this site and completing restoration. The chairman of the citizens group complimented the willingness of the base personnel to work with their group and to keep them informed. As the article states, this base is the first Department of Defense facility in New England to obtain the "last remedy in place" status.

cleanups by the military components (Army, Air Force, Navy, and Marine Corps). At DON facilities, the Resource Conservation and Recovery Act (RCRA) and state-led Underground Storage Tank (UST) cleanup programs also may be applied by regulatory agencies. All of these regulatory requirements for cleanup are implemented by the DON under the Installation Restoration Program.

In 1986, Congress passed the Superfund Amendments and Reauthorization Act (SARA). This act mandated that DoD comply with the same environmental laws as private entities and established the Defense Environmental Restoration Program (DERP). Through the DERP, DoD conducts environmental restoration activities at sites on active installations, installations undergoing Base Realignment and Closure (BRAC), and Formerly Utilized Defense Sites (FUDS). The Office of the Secretary of Defense (OSD) provides oversight for the DERP, which each of the military departments is responsible for implementing. The DON Installation Restoration Program was designed to identify and clean up contamination from hazardous substances, pollutants, and contaminants in order to protect human health and safety, and the environment at both Navy and Marine Corps sites. The DON Installation Restoration Program combines aggressive policies, technical training, innovative technologies, partnerships with stakeholders, and proactive, dedicated personnel to restore and preserve property under Navy and Marine Corps stewardship.

As part of the FY 2002 Defense Authorization Act, Congress mandated that DoD and the military components develop a program to address military munitions as part of the DERP. DoD quickly responded by developing a unique program element under DERP to address the explosive safety hazards associated with Munitions and Explosives of Concern (MEC), and the human health and environmental risks associated with munitions constituents. The goals of the DoD Military Muntions Response Program are to:

1. Reduce risk to people and the environment from the hazards associated with munitions and munitions constituents.
2. Conduct munitions responses to allow land reuse by non-DoD parties.
3. Complete all Installation Restoration Program requirements associated with munitions constituents.

Even before DoD directed the services to establish the Munitions Response Program, DON took a proactive approach by establishing and funding their program. Early actions included conducting Navy-wide inventories to identify potential MEC-contaminated sites.

The Pathway to Achieving Restoration

The CERCLA remedial process described in Figure 1.1 is used as a template for most Installation Restoration Program (IRP) sites and provides a full and careful cleanup approach from site identification and investigation through cleanup and close out. Brief descriptions of each phase of the process and some key components of these phases are provided below.

Preliminary Assessment (PA) – The PA determines the probability of and possible locations of potentially contaminated areas.

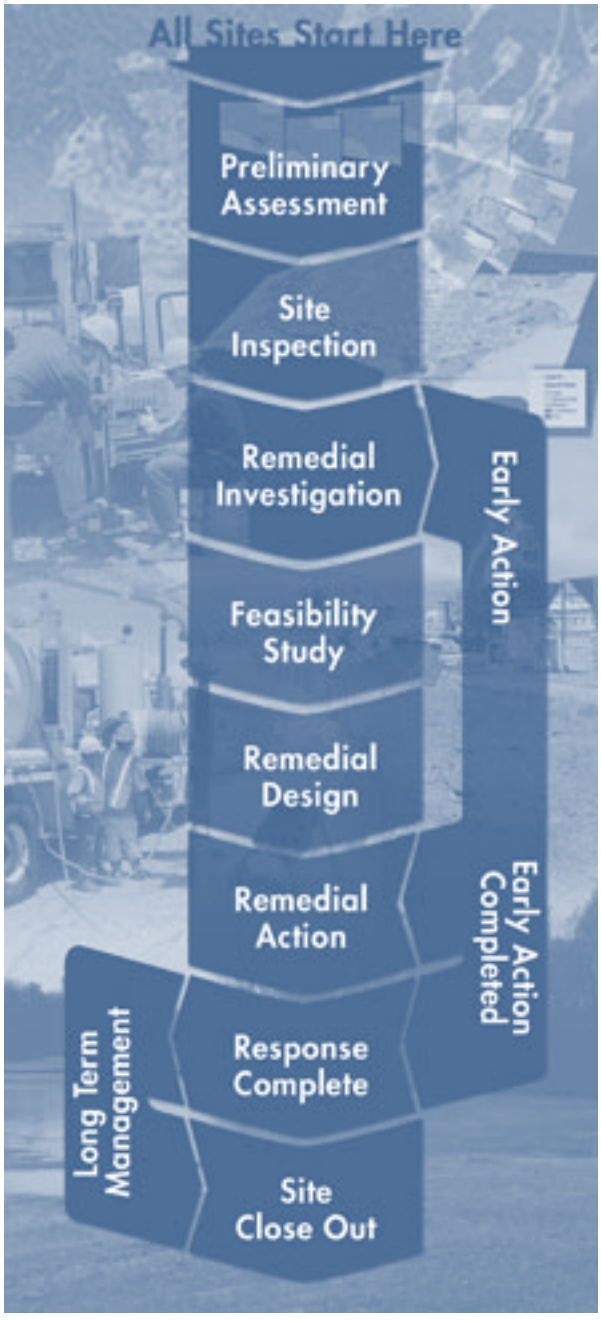

Figure 1.1. Pathways to restoration.

Site Inspection (SI) – The SI includes a physical inspection of potential sites and, depending on site type, may include limited soil, surface water, and/or groundwater sampling. Data from the sampling events are used by the U.S. Environmental Protection Agency (EPA) to score the sites using the Hazard Ranking System (HRS). This HRS score determines whether the installation is eligible for inclusion on EPA's National Priorities List (NPL).

Early Action – Early action may be taken at almost any phase of the process prior to the final remedial action. Early action may be indicated if significant contamination is discovered that poses an immediate threat to human health or the environment that cannot wait until the final remedy is selected. The early action could be a Removal Action or an Interim Remedial Action (IRA).

Remedial Investigation (RI) – The RI includes fully characterizing the nature and extent of contamination at a site, determining the regulatory requirements, conducting a baseline risk assessment for human health and the environment, and developing cleanup alternatives that could be applied to the site.

Feasibility Study (FS) – The FS phase begins the process for selecting the remedial action to be taken and the technologies to be used. Potential technologies are identified and assessed using the criteria required by all applicable laws. Bench tests or pilot studies may be performed. At the end of this phase, the decision document, or Record of Decision (ROD), is written to document the remediation decisions made.

Remedial Design (RD) – Once the remediation or cleanup alternative has been selected, engineers design the remedial system to meet the remedial objectives described in the decision document (or ROD). Once the design is complete, the plans are turned over to a construction contractor, who builds the remediation system.

Remedial Action (RA) – This phase is where the actual cleanup work takes place. The Remedial Action Construction (RAC) portion of this phase covers the construction of the remedial solution to be used for cleanup. Once construction is complete and the remedy is working as designed, it is considered to be a Remedy In Place (RIP). Remedial Action Operation (RAO) is the period of time that the remedial system must operate before all cleanup goals are achieved.

Response Complete (RC) – Once all cleanup goals are achieved and RAO is complete, the site is considered Response Complete. Although most sites achieve RC after construction and operation of a remedial system, it also is possible to achieve RC after a Removal Action is taken or without any action being taken, provided that it is determined that the site poses no threat to human health or the environment.

Long-Term Management (LTMgt) – Long-term management and monitoring may be required to ensure that the remedy continues to meet cleanup goals. If residual contamination is left in place, there is a requirement for conducting Five Year Reviews to ensure that long-term protectiveness is being achieved.

Site Close Out (SCO) – Site Close Out is reached when the DON and, as necessary, regulatory partners, determine that active management and monitoring at a site is complete and no additional funding is expected to be needed.

The DON environmental restoration web page (*http://5yrplan.nfesc.navy.mil/*) contains more detailed information about DON's Installation Restoration Program for each installation. In addition, this Web page provides information on installation mission, background, regulatory drivers, community involvement, accomplishments, cleanup actions, and funding.

The DON environmental web page is http://5yrplan.nfesc.navy.mil

Installation Restoration Program

The purpose of the DON Installation Restoration Program is to reduce the risk to human health and the environment from past waste disposal operations and hazardous material spills at Navy and Marine Corps installations. It is DON's goal to complete cleanup in a cost-effective manner consistent with DERP requirements and to minimize impacts to our military mission. The Installation Restoration Program provides funding for bases to locate, investigate, and clean up waste. Cleaning up military bases is done in partnership with the EPA, state and local regulatory agencies, and members of the community.

DON has several goals for the Installation Restoration Program:

- Fully comply with federal, state, and local requirements.
- Act immediately to eliminate human exposure to contamination that poses imminent threats.
- Clean up first those sites that pose the greatest relative risk to human health and environment.
- Develop partnerships with federal, state, and local regulatory agencies.
- Involve local communities in the Installation Restoration Program by establishing Restoration Advisory Boards. Encourage stakeholder participation, make information available in a timely manner, encourage public input, and consider all comments in the decision-making process.
- Expedite the cleanup process and demonstrate a preference for action.
- Consider current planned land use in developing cleanup strategies.

In addition to sites that follow the CERCLA process, RCRA may be applied by regulatory agencies for corrective actions at sites or facilities impacted by past treatment, storage, and disposal practices for hazardous substances. State UST programs guide cleanup at most petroleum hydrocarbon-contaminated sites. All these cleanup requirements are implemented by the DON under the Installation Restoration Program.

Munitions Response Program

As part of the DoD's Military Munitions Response Program, the DON initiated its Munitions Response Program to address risks related to military munitions. This DON program is geared toward addressing the unique explosive safety hazards associated with munitions and explosives of concern and human health risks posed by munitions constituents at Navy and Marine Corps locations not designated as operational ranges. This includes closed ranges and munitions disposal sites on active bases, and those transferred under prior BRAC authorities.

Current objectives of the DON Munitions Response Program are to:

- Limit exposure to explosives safety hazards to the minimum number of people for the minimum amount of time consistent with explosives safety policy and standards.
- Integrate, to the extent practicable, munitions responses with other environmental responses.
- Conduct munitions responses based on site specific data, reasonably anticipated and appropriate land use, and use of the best available and appropriate technologies and methods.
- Establish and maintain an inventory of munitions response sites and a process for prioritizing actions at these locations.
- Provide, to the greatest extent practicable, opportunities for meaningful involvement of other federal agencies; state, tribal, and local governments; and members of the public in the munitions response process.

Partners in Progress

Navy Partners

The Chief of Naval Operations (CNO) Environmental Readiness Division and the Naval Facilities Engineering Command (NAVFAC) are the two primary organizations within the Navy responsible for overseeing and implementing the Installation Restoration Program and the Munitions Response Program (Figure 1.2).

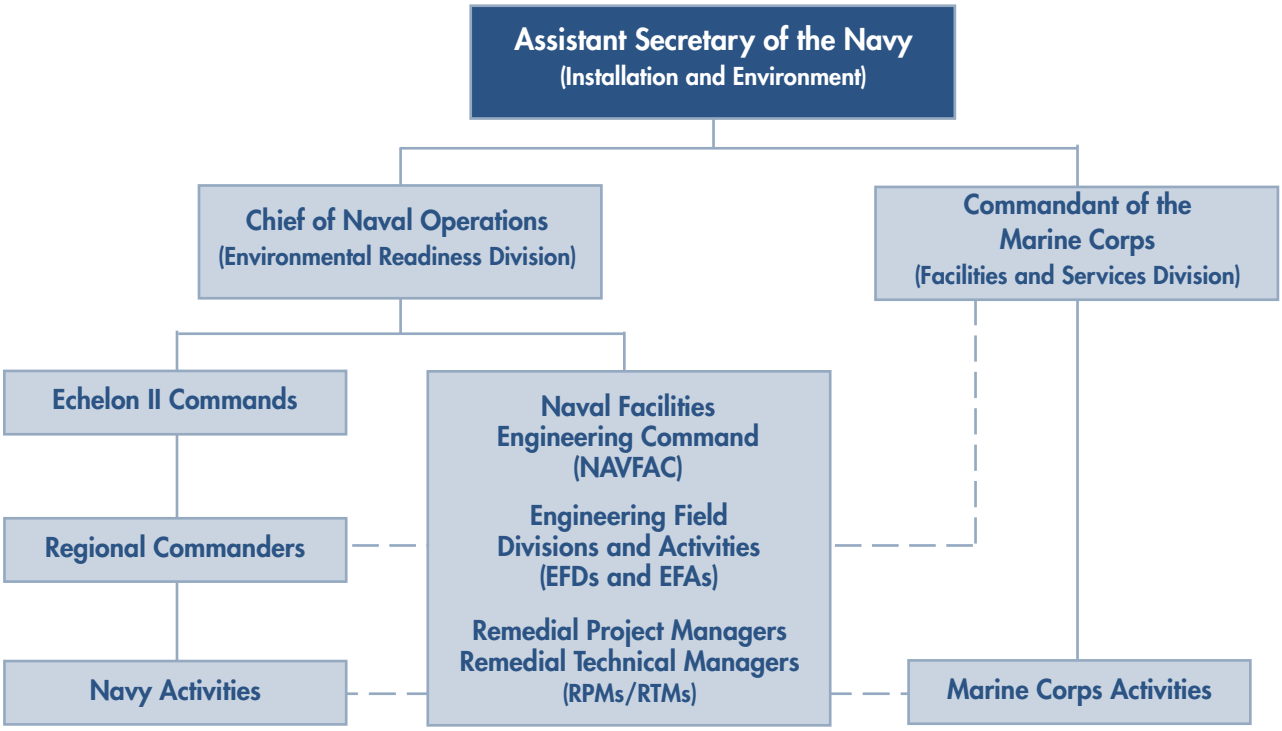

Figure 1.2. Department of Navy organization chart.

CNO is the resource and assessment sponsor for the Navy's environmental restoration funds, and works with the Navy budget office to prepare the Program Objective Memorandum (POM). CNO reviews the budget to ensure conformity to policy, and reviews site-specific data prepared by NAVFAC for more than 3,600 sites to ensure that budget requests align with program needs.

CNO develops, compiles, analyzes, and reports Navy environmental restoration data. These reports include the DERP Annual Report to Congress, the DoD Report to Congress on Munitions and Unexploded Ordnance, Cost-to-Complete (CTC) data, Consent Orders, Congressional requirements (e.g., legislative proposals, briefing packages), Measures of Merit, the DON Environmental Restoration Plan (this document), and posture statements.

NAVFAC is the Budget Submitting Office (BSO) and NAVFAC Engineering Field Divisions and Activities (EFDs and EFAs) (Figure 1.3.) are responsible for meeting the goals of the Defense Planning Guidance (DPG). NAVFAC implements the Installation Restoration Program for both Navy and Marine Corps installations. As a result, DON requirements are planned, programmed, and budgeted for both Navy and Marine Corps installations. The NAVFAC role in the Installation Restoration Program includes support and project execution, contracting, design and construction, and BRAC support. To implement the program, NAVFAC work groups help with innovative technologies, risk assessments, and other program issues.

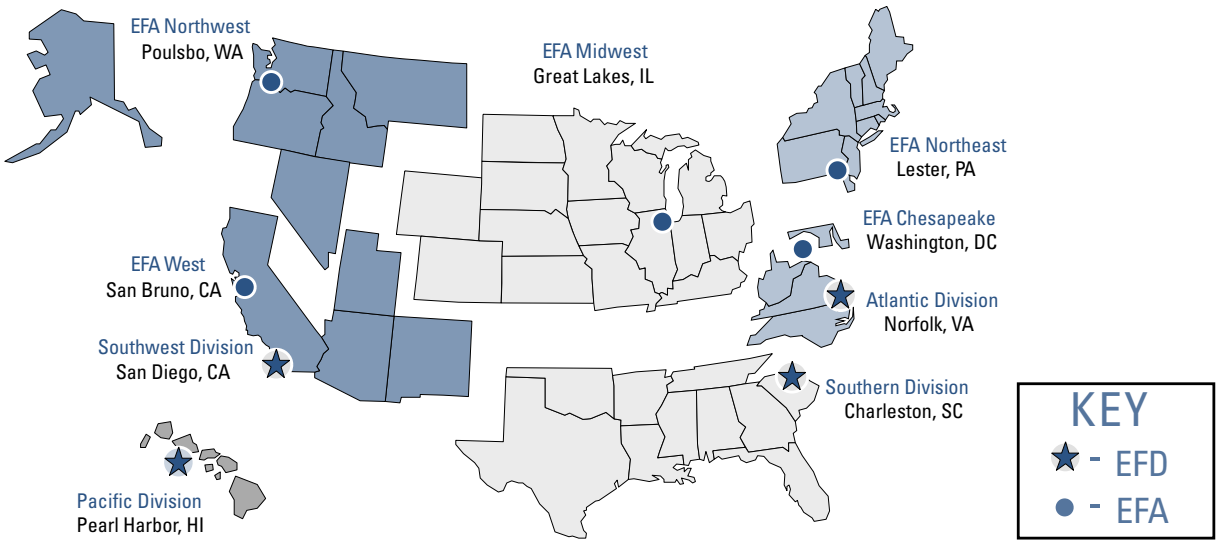

Figure 1.3. NAVFAC's Engineering Field Divisions (EFDs) and Activities (EFAs).

Community Partners

Community and stakeholder input is a valuable tool to ensure Navy environmental restoration efforts gain stakeholder acceptance.

DON began seeking stakeholder input on the Installation Restoration Program as early as 1985. In the early 1990s, DoD service-level restoration program managers and local communities surrounding their installations initiated dialogue and reviewed several areas of concern within the Installation Restoration Program, including public participation. This initial dialogue marked the beginning of DON's more interactive approach.

The primary mechanism for ensuring the public is proactively involved in the Installation Restoration Program is the Restoration Advisory Board (RAB), through which the community has the opportunity to participate in cleanup decisions. Another key element is the DON partnering effort with regulatory agencies. Partnering agreements can accelerate the process by improving coordination. Having community and regulator involvement and buy-in early in the process often can prevent delays at later phases of the restoration process.

Figure 1.4. Community involvement through a Restoration Advisory Board (RAB).

Restoration Advisory Boards

Restoration Advisory Boards (RABs) are a key partnering mechanism to develop cleanup strategies that are workable for all partners. RABs are made up of DON installation representatives, local citizens, and regulators, and serve as an important interface between the Navy and the community on environmental restoration issues (Figure 1.4). The RAB members meet face-to-face to discuss the restoration project, develop plans, and review results. Navy and Marine Corps installations have formed RABs at all major BRAC and active installations where sufficient, sustained community interest exists. RAB members participate in regular meetings run by installation and community co-chairs. At these meetings, the installation provides updates on site progress through the Installation Restoration Program phases and announces new activities and challenges at the sites. RABs have fostered an exchange of knowledge about scientific and engineering issues, contributed to cost avoidance at IRP sites, and facilitated a greater understanding of total Navy readiness issues.

Navy Partners — Restoration Advisory Boards

Meeting of the Remedial Advisory Board and Technical Subcommittee for Naval Warfare Center Warminster. Partners include the Navy, Warminster Municipal Authority, Pennsylvania Department of Environmental Protection, U.S. Environmental Protection Agency, and U. S. Geological Survey.

Technical Assistance for Public Participation

The Navy's Technical Assistance for Public Participation (TAPP) program, managed by CNO, is another mechanism that supports partnerships. The TAPP program provides independent technical assistance to RAB and Technical Review Committee (TRC) local community members through contracts with small businesses. To receive TAPP assistance, one must first define the proposed project, evaluate alternative sources of funding, and submit a TAPP application. Funded by the Environmental Restoration, Navy (ER,N) account for active bases and from the BRAC account for closing bases, TAPP projects frequently include the independent review and evaluation of technical documents by an expert chosen by the community members of the RAB. Through these activities, TAPP enables community members to better understand and provide input to the Navy environmental restoration process. DON has issued guidance for TAPP requests at Navy installations, which can be downloaded from the DON environmental restoration web page (*http://5yrplan.nfesc.navy.mil*).

Other Partners

The Navy seeks to develop other partnerships throughout the environmental community that will lead to improving the environmental restoration process. State and federal regulators, as well as other branches of DoD, provide valuable contributions to the overall success of the cleanup program. For example, the Navy participates in research and educational efforts such as the Interstate Technology Regulatory Council

(ITRC), a state-led coalition of state regulators, multiple federal partners, industry representatives, and other stakeholders working together to achieve regulatory acceptance of new environmental technologies. Other efforts include Navy's proactive approach in developing web-based technologies that allow for the efficient sharing of information among partners. Services such as the Early Transfer Hub assist partners in preparing required documents and facilitates the transfer process for closing facilities (Figure 1.5).

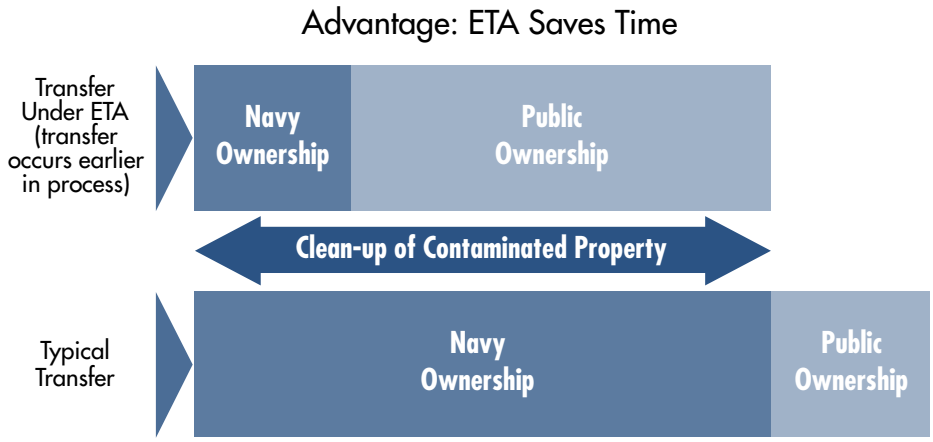

Figure 1.5. Early Transfer Authority (ETA).

The DON Environmental Restoration Plan for Fiscal Years 2004 - 2008

The purpose of this plan is to communicate the DON vision, explain the Installation Restoration and Munitions Response Programs, highlight recent program progress, delineate future goals, and summarize funding data. This plan serves multiple audiences including community members, stakeholders, DON policy makers, project managers, technical managers, installation personnel, engineers, and scientists. To facilitate efficient cleanup decisions that are acceptable to all partners, information exchange among all of these participants is critical. In addition, this plan provides DON installations the opportunity to share lessons learned from cleanup experiences and to transfer knowledge about technological achievements.

Chapter 2 presents a summary of accomplishments, progress toward goals and new initiatives of FY 2003, and plans for future endeavors in Fiscal Years 2004 to 2008. New guidance and policies issued in FY 2003 are noted. A summary of progress made by work groups and other partnering efforts is presented. Chapter 3 highlights successful cleanups, partnering efforts, and innovative technologies at individual

Navy installations. Chapter 4 provides overall funding and program status of the Installation Restoration and Munitions Response Programs, and Chapter 5 provides installation summaries. This plan is also available electronically on the DON environmental restoration web page (*http://5yrplan.nfesc.navy.mil*).

Figure 1.6. The DON environmental restoration web page.